

EGS CONFIDENCE TEST EXECUTION COVER SHEET

1. Test ID and Title: ICT9 - EOC to NCC Interface Confidence Test

2. Test Conductor / Test Lead: Sara Haugh

3. Planned Execution Date: 12/31/96 - 1/7/96

4. Actual Execution Date: _____

5. Planned Configuration:

Hardware:

NTS or NCCDS
FOS User Workstation
FOS Real Time Server
FOS Data Server
FOS Data Storage Unit

Software:

NTS or NCCDS Release X.X
FOS Subsystems Release A
Planning and Scheduling
Real-Time Contact Management
Data Management
Analysis
User Interface

6. "As Run" Configuration:

7. Package items planned for execution:

ICT9.2 Real-time Interface: Only procedures whose functionality is available in Release A will be executed.

8. Package items actually executed and deviations from currently published procedures.

9. Results

- a. Capabilities successfully demonstrated
- b. Capabilities not successfully demonstrated
- c. Requirements verified
- d. Discrepancy Reports submitted

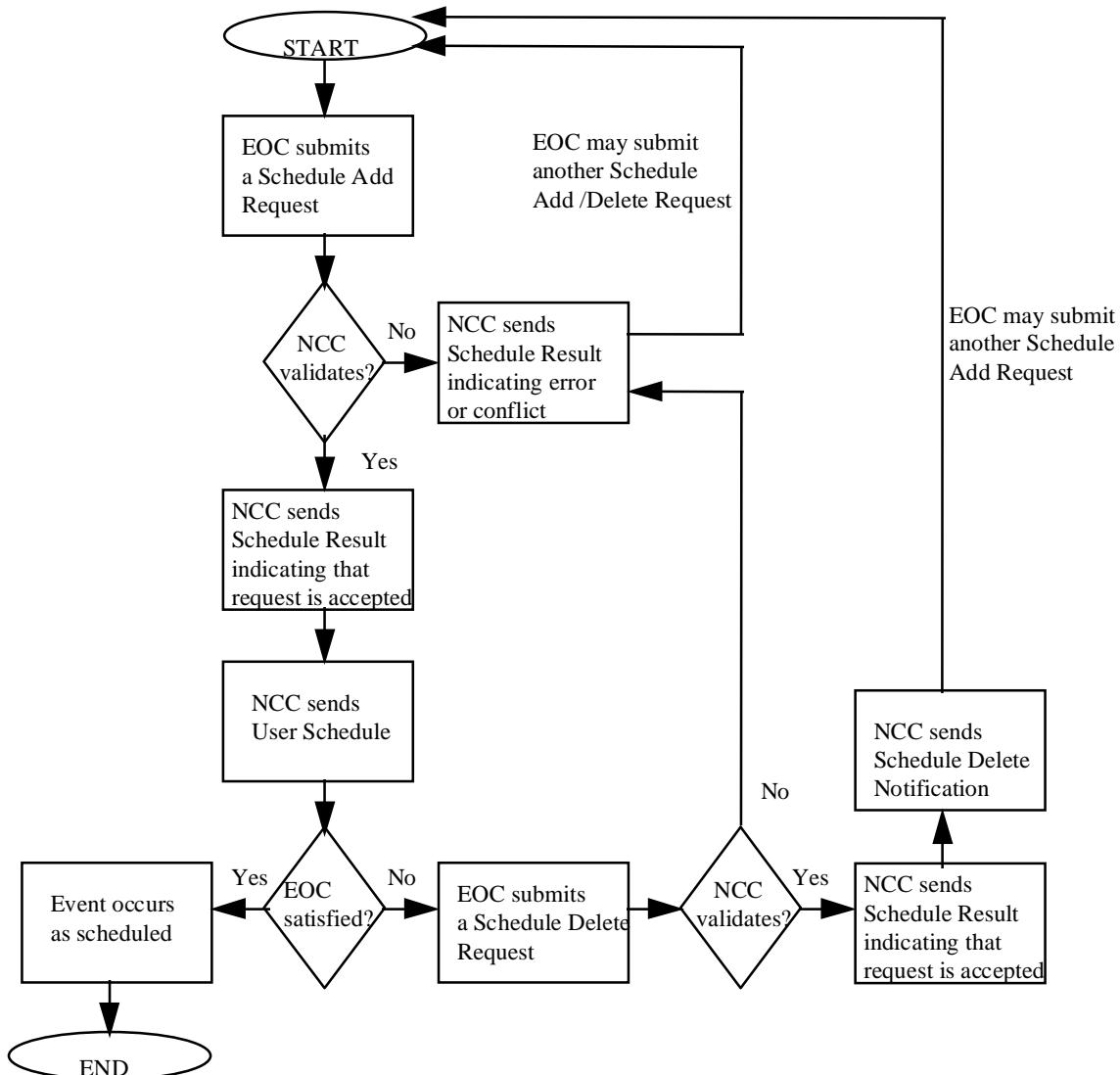
10. Lessons Learned

EOC to NCC Interface Confidence Test - ICT9

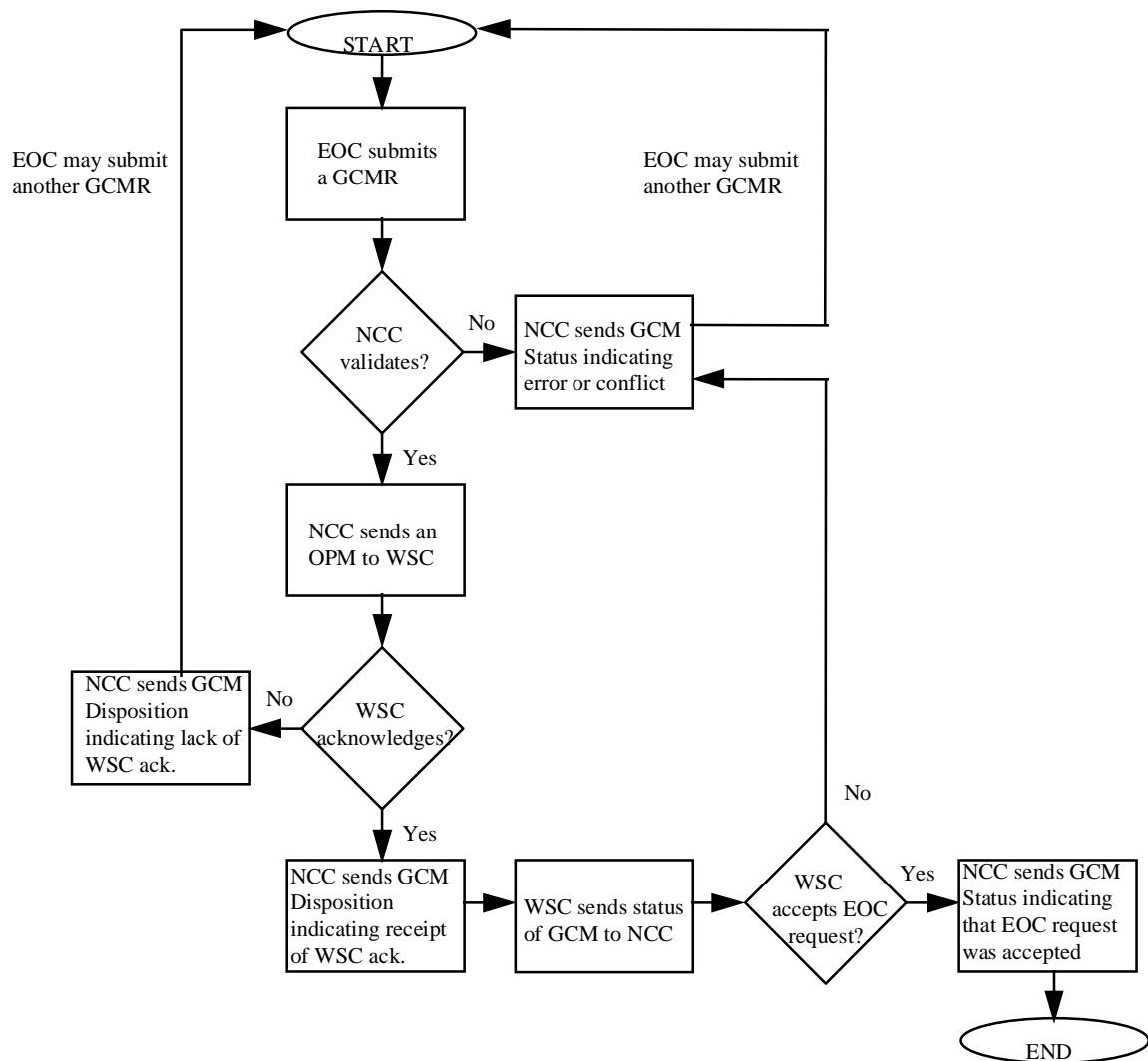
The Network Control Center (NCC) is the focal point for management of the Space Network (SN). The NCC is responsible for the scheduling of Tracking and Data Relay Satellite System (TDRSS) operations and the performance of link monitoring and fault isolation. The NCC and EOC communicate using schedule information and non-telemetry messages for nominal operations. Schedule coordination for contingency/emergency situations is handled via voice, fax, and/or email. There are seven data flows defined between the EOC and NCC outlined below.

From	To	Data Flow	Communications Link
EOC	NCC	TDRSS Schedule Requests - add and delete requests	EBnet
NCC	EOC	Schedule Result Messages	EBnet
NCC	EOC	TDRSS Schedule Messages - schedules and delete notifications	EBnet
EOC	NCC	Non-Telemetry Messages - Ground Control Message (GCM) and User Performance Data (UPD) requests, test messages, acknowledgments	EBnet
NCC	EOC	Non-Telemetry Messages - GCM dispositions, GCM status, acquisition failure notifications, UPD, return channel time delay measurements, time transfer messages, test messages, acknowledgments	EBnet
EOC	NCC	Schedule Coordination - scheduling requests for contingency/emergency support from the Ground Network (GN), Deep Space Network (DSN), or Wallops Orbital Tracking Station (WOTS)	Voice/Fax/Email
NCC	EOC	Schedule Coordination - scheduling results for contingency/emergency support from GN, DSN or WOTS	Voice/Fax/Email

Schedule information consists of Schedule Add and Delete Request Messages, Schedule Result Messages, Schedule Delete Notification Messages and User Schedule Messages. The data flow for these messages is displayed below.



Non-telemetry messages include GCM Request (GCMR) Messages, GCM Disposition Messages, GCM Status Messages, UPD Request Messages, Return Channel Time Delay Measurement Messages, Acquisition Failure Notification Messages, Time Transfer Messages, UPD, Communications Test Messages and Acknowledgment Messages. The data flow for the GCMR process is displayed below.



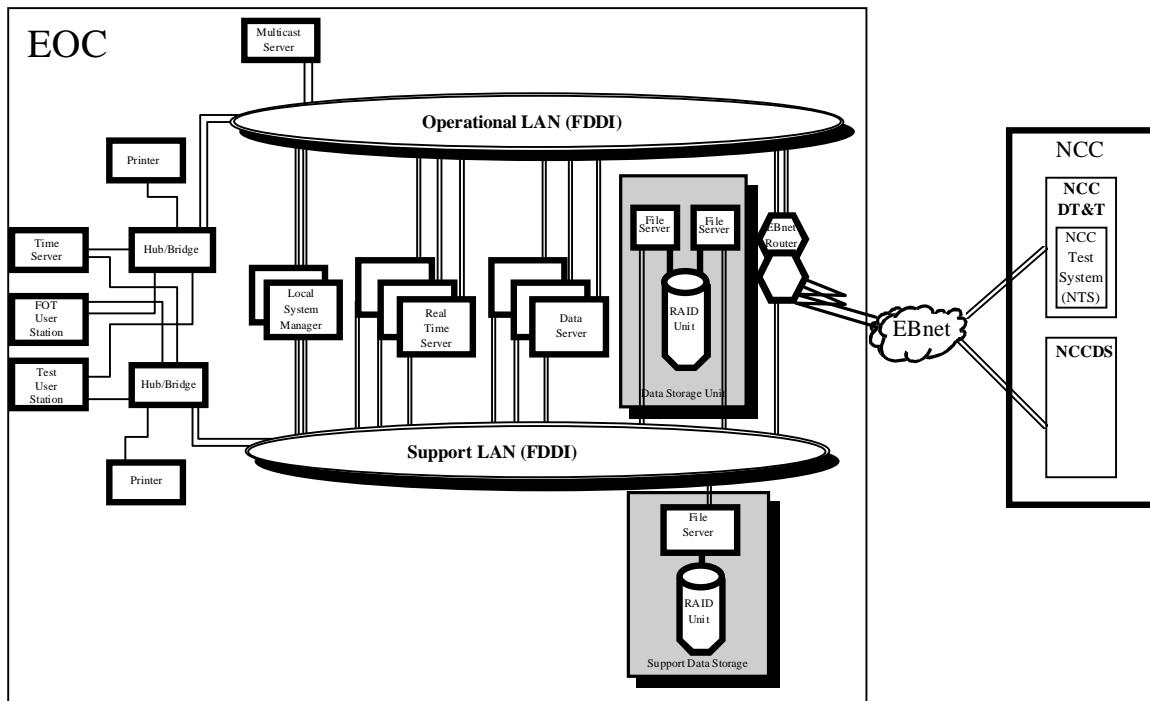
Test Objectives:

This test verifies requirements associated with the EOC - NCC interface. The objectives of this test are the following:

- to verify the EOC - NCC schedule message interface
- to verify the EOC - NCC real-time message interface

Test Configuration:

Hardware and software configurations at each ECS site are managed and tracked by the M&O organization at that site. The test will be executed using either the NCC Test System (NTS) or the NCC Data System (NCCDS), depending on which is available at the time of the test. The most current system configuration will be obtained prior to the start of testing and noted on the execution cover sheet.



EOC to NCC Interface Confidence Test

Participants and Support Requirements:

Participants: EBnet, EOC M&O (FOT), NCC M&O, I&T

Communications:

Voice: SCAMA or CCL circuit from EOC to NCC

Data: EBnet circuit from EOC to NCC

IP addresses: **TBS**

Equipment and Software:

Hardware:

NTS

NCCDS

FOS User Workstation
Real Time Server
Data Server
Data Storage Unit

Software:

NTS Software
NCCDS Software
FOS Planning and Scheduling Subsystem
FOS Real-time Contact Management Subsystem
FOS Data Management Subsystem
FOS Analysis Subsystem
FOS User Interface Subsystem

Test Tools:

NCC Development, Test, and Training (NCC DT&T) System

Test Data:

Description/Characteristics	Source	File/Script Name & Location
Schedule Information: <ol style="list-style-type: none">1. Batch of valid Schedule Add Requests (SARs)<ul style="list-style-type: none">- covering a one week time period- created using prototype events for various TDRS, services, configuration codes, and durations(need to get prototype event info.) 2. Batch of valid and invalid SARs<ul style="list-style-type: none">- covering a one week time period- constructed such that the following schedule results will be sent from NCC:<ul style="list-style-type: none">• request granted• request canceled by operator• request rejected due to conflict• request rejected due to authority check failure• request rejected due to invalid parameter• request does not fall within proper schedule period or has other invalid time relationship• request placed in valid request queue• request rejected for reason specified• referenced event cannot be found• request rejected - spool queue overflow• request received and spooled for processing• request rejected due to NCC system error(need to get a list of how the schedule result explanations can be grouped with results above, a	EOC	TBS TBS

Description/Characteristics	Source	File/Script Name & Location
<p>list of valid parameters, etc.)</p> <p>3. Valid SARs <ul style="list-style-type: none"> - created using prototype events for various TDRS, services, configuration codes, and durations <p>(need to get prototype event info.)</p> <p>4. Valid SARs <ul style="list-style-type: none"> - not created using prototype events - containing nonstandard configuration codes and durations <p>(need to get nonstandard information)</p> </p></p>		<p>Generated by EOC during test</p> <p>Generated by EOC during test</p>
<p>5. Invalid SARs and Schedule Delete Requests <ul style="list-style-type: none"> - constructed such that the following schedule results will be sent from NCC: • request granted • request canceled by operator • request rejected due to conflict • request rejected due to authority check failure • request rejected due to invalid parameter • request does not fall within proper schedule period or has other invalid time relationship • request placed in valid request queue • request rejected for reason specified • referenced event cannot be found • request rejected - spool queue overflow • request received and spooled for processing • request rejected due to NCC system error <p>(need to get a list of how the schedule result explanations can be grouped with results above, a list of valid parameters, etc.)</p> </p>		<p>Generated by EOC during test</p>
<p>Schedule Information:</p> <ol style="list-style-type: none"> 1. Schedule Result Messages containing results as listed above 2. User Schedules 3. Schedule Delete Notifications 	NCC	<p>Generated by NCC during test</p>
<p>Non-Telemetry Messages:</p> <ol style="list-style-type: none"> 1. Communications Test Message 2. Acknowledgments 	EOC	<p>Generated by EOC during test</p>

Description/Characteristics	Source	File/Script Name & Location
<p>3. UPD Request</p> <p>4. Valid GCMRs of the following types:</p> <ul style="list-style-type: none"> - User Reacquisition Request - Forward Link Sweep Request - Forward Link EIRP Reconfiguration Request - Expanded User Frequency Uncertainty Request - User Reconfiguration Request - Doppler Compensation Inhibit Request <p>5. Invalid GCMRs</p> <ul style="list-style-type: none"> - constructed such that the following GCM status messages will be sent from NCC and WSC: <p><u>NCC:</u></p> <ul style="list-style-type: none"> • No response received from WSC • Invalid parameter in MOC request • SUPIDEN conflicts with scheduled SUPIDEN • Service is not scheduled • Data rate exceeds allowable rate for this service • MOC not authorized for this spacecraft • Interface channel not available • GCM class inappropriate to service type or configuration • Doppler compensation inhibit code inappropriate for configuration • WSC is down • Pending request for same service <p><u>WSC:</u></p> <ul style="list-style-type: none"> • Syntax error • SHO ID not found • Specified service not found • Specified service is not active or is undergoing change because of a previous MOC request • Parameter out of range • Incoming queues full • User spacecraft not recognized • MOC request not applicable for service designated • Incomplete or ambiguous parameter designation 		

Description/Characteristics	Source	File/Script Name & Location
<ul style="list-style-type: none"> • Equipment conflict • Required corresponding forward service is not in operation • Connectivity table error (no TDRS/ground antenna match) 		
Non-Telemetry Messages: <ol style="list-style-type: none"> 1. Communications Test Message 2. Acknowledgments 3. UPD 4. Acquisition Failure Notification 5. GCM Disposition Messages 6. GCM Status Messages 7. Time Transfer Message 8. Return Channel Time Delay Measurement Message 	NCC	Generated by NCC during test

Test Case Descriptions:

ICT9.1 Scheduling Interface

This test case verifies the scheduling message interface between the NCC and EOC. This test will verify that the EOC can use the following methods to schedule contacts with the NCC:

- Batch Scheduling - to schedule a batch of contacts covering a specific time period
- SAR Scheduling - to schedule or delete a single contact

Batch Scheduling:

The EOC will submit a batch of valid SARs covering a one week time period to the NCC. The NCC will respond with schedule results indicating that the requests will be granted and user schedules. Both the EOC and NCC will send acknowledgments after message receipt when appropriate.

The EOC will submit a batch of both valid and invalid SARs covering a one week time period to the NCC. Invalid requests will be constructed such that the schedule results indicated in the Test Data section are returned from the NCC. After receipt of the schedule result messages from the NCC, the EOC will submit a new batch of SARs which addresses each of the errors/conflicts. The NCC will respond with schedule results indicating that the requests will be granted and user schedules. Both the EOC and NCC will send acknowledgments after message receipt when appropriate.

SAR Scheduling:

The EOC will submit several valid SARs to the NCC, one at a time. The NCC will respond with schedule results indicating that the requests will be granted and user schedules. The EOC will submit schedule delete requests for each of the events just scheduled. The NCC will respond with schedule results indicating that the requests will be granted and schedule delete notifications. Both the EOC and NCC will send acknowledgments after message receipt when appropriate.

The EOC will submit several valid SARs for nonstandard services to the NCC, one at a time. The NCC will respond with schedule results indicating that the requests will be granted and user schedules. Both the EOC and NCC will send acknowledgments after message receipt when appropriate.

The EOC will submit several invalid SARs and schedule delete requests to the NCC, one at a time. Invalid requests will be constructed such that the schedule results indicated in the Test Data section are returned from the NCC. After receipt of the schedule result messages from the NCC, the EOC will submit new requests, one at a time, which address each of the errors/conflicts. The NCC will then respond with schedule results indicating that the requests will be granted, user schedules, and schedule delete notifications. Both the EOC and NCC will send acknowledgments after message receipt when appropriate.

Requirements to be Verified:

Release B:

EOC-2400#B	EOC-2410#B	EOSD1520#B
EOC-2405#B	EOC-2420#B	EOSD1530#B

ICT9.2 Real-time Interface

This test case verifies the real-time message interface between the NCC and EOC.

A communications test message will be sent by both the NCC and the EOC to ensure NCC-EOC connectivity. The EOC will send a UPD request and receive UPD following the request. The EOC will send the following valid GCMRs to the NCC:

- User Reacquisition
- Forward Link EIRP Reconfiguration
- User Reconfiguration
- Forward Link Sweep
- Expanded User Frequency Uncertainty
- Doppler Compensation Inhibit

The NCC will respond with GCM disposition and status messages. Invalid GCMRs will be constructed such that after transmission of the GCMRs, the GCM status messages indicated in the Test Data section are returned from the NCC. The NCC will transmit time transfer and return channel time delay measurement messages to the EOC. Both the EOC and NCC will send acknowledgments after message receipt when appropriate.

Requirements to be Verified:

Release A:

EOC-4060#A EOC-5030#A

Release B:

EOC-4060#B EOC-5030#B EOC-8100#B

Test Procedures:

<u>Test Set-up:</u>	<u>Step</u>	<u>Station</u>	<u>Action</u>	<u>Expected Results</u>	<u>Comments</u>
	1.	EOC	Ensure hardware is initialized		
	2.	EOC	Ensure the Sybase database servers are initialized		
	3.	EOC	Log into the Data Servers		
	4.	EOC	Start the Data Servers: A2_DataServerStartup	Data Servers are initialized	
	5.	EOC	Log into the Real Time Servers		
	6.	EOC	Start the Real Time Servers: A2_RealTimeServerStartup	Real Time Servers are initialized and a logical string is established	
	7.	EOC	Log into the User Stations		
	8.		Start the User Station: A2_UserStationStartup	User Stations are initialized and the Control Window is displayed	
	9.	EOC	Bring up the Event Display page: PAGE EventDisplay	Event Display page is displayed	
	10.	NCC	Log into the NTS or NCCDS and initialize		
	11.	I&T	Record the system configuration on the execution cover sheet	NCC is configured for test execution	

Test Execution: ICT9.1 Scheduling Interface			
Step	Station	Action	Expected Results
1.	EOC	Verify that NCC configuration codes are in the FOS database	(rest of 9.1 is Rel. B)
2.	EOC	Verify Batch #1 of valid SARs has been scheduled on the Master EOC Plan	Communication Contact window should indicate that the user may transmit the batch to NCC
3.	EOC	Send Batch #1 to NCC	NCC sends an acknowledgment and a Schedule Result Message for each SAR in the batch indicating “request granted”
4.	NCC	Send a User Schedule for each SAR in Batch #1	EOC sends an acknowledgment, timeline is updated showing the scheduled events
5.	EOC	Verify Batch #2 of valid and invalid SARs has been scheduled on the Master EOC Plan	Communication Contact window should indicate that the user may transmit the batch to NCC
6.	EOC	Send Batch #2 to NCC	NCC sends an acknowledgment and sends a Schedule Result Message with the appropriate schedule result for each SAR in the batch
7.	EOC	Send an acknowledgment to NCC	Timeline is updated showing the scheduled events, user is notified of rejected requests
8.	EOC	Create a new batch of SARs for the ones which had an error/conflict	
9.	EOC	Send new batch to NCC	NCC sends an acknowledgment and a Schedule Result Message for each SAR in the batch indicating “request granted”
10.	NCC	Send a User Schedule for each SAR in new batch	EOC sends an acknowledgment, timeline is updated showing the scheduled events
11.	EOC	Send an individual SAR, configuration code ## to NCC	NCC sends an acknowledgment and a Schedule Result Message indicating “request granted”
12.	NCC	Send a User Schedule for the SAR above	EOC sends an acknowledgment, timeline is updated showing the scheduled event

Step	Station	Action	Expected Results	Comments
13.	EOC	Send an individual SAR, configuration code ### to NCC	NCC sends an acknowledgment and a Schedule Result Message indicating “request granted”	
14.	NCC	Send a User Schedule for the SAR above	EOC sends an acknowledgment, timeline is updated showing the scheduled event	
15.	EOC	Send a Schedule Delete Request for the event scheduled in step 11	NCC sends an acknowledgment and a Schedule Result Message indicating “request granted”	
16.	NCC	Send a Schedule Delete Notification	EOC sends an acknowledgment, timeline is updated, no longer showing the event	
17.	EOC	Send a Schedule Delete Request for the event scheduled in step 13	NCC sends an acknowledgment and a Schedule Result Message indicating “request granted”	
18.	NCC	Send a Schedule Delete Notification	EOC sends an acknowledgment, timeline is updated, no longer showing the event	
19.	EOC	Send an individual SAR, created without using a prototype event, to NCC	NCC sends an acknowledgment and a Schedule Result Message indicating “request granted”	
20.	NCC	Send a User Schedule for the SAR above	EOC sends an acknowledgment, timeline is updated showing the scheduled event	
21.	EOC	Send an individual invalid SAR	NCC sends an acknowledgment and sends a Schedule Result Message with the appropriate schedule result	
22.	EOC	Create a new SAR		
23.	EOC	Send the new SAR to NCC	NCC sends an acknowledgment and a Schedule Result Message indicating “request granted”	
24.	NCC	Send a User Schedule for the SAR above	EOC sends an acknowledgment, timeline is updated showing the scheduled event	
25.	EOC	Send an individual invalid Schedule Delete Request	NCC sends an acknowledgment and sends a Schedule Result Message with the appropriate schedule result	
26.	EOC	Create a new Schedule Delete Request		
27.	EOC	Send the new Schedule Delete Request to NCC	NCC sends an acknowledgment and a Schedule Result Message indicating “request granted”	
28.	NCC	Send a Schedule Delete Notification	EOC sends an acknowledgment, timeline is updated, no longer showing the event	

(to be updated when more specific Release B information is available)

ICT9.2 Real-time Interface

Step	Station	Action	Expected Results	Comments
1.	EOC	Turn on the NCC archive for logical string #####: RCCONFIG STRING=##### NCCARCHIVE=ON	Event Display indicates that the archive is on; all NCC messages will be archived for the test	
2.	EOC	Request command authority privilege for logical string #####: TAKE COMMAND STRING=#####	Event Display indicates that the user acquired command authority	
3.	EOC	Send a CTM to NCC: NCC COMMTEST UPD	Event Display indicates that the CTM was sent to NCC	Rel. B
4.	NCC	Send an acknowledgment to EOC	EOC Event Display indicates that the NCC acknowledgment was received	Rel. B
5.	NCC	Send a CTM to EOC	EOC Event Display indicates that the CTM was received and EOC sends an acknowledgment	Rel. B
6.	EOC	Send a UPD Request to NCC: NCC PERFORMANCEDATA ENABLE	Event Display indicates that the UPD Request was sent to NCC	Rel. B
7.	NCC	Send an acknowledgment to EOC	EOC Event Display indicates that the NCC acknowledgment was received	Rel. B
8.	NCC	Send UPD to EOC	EOC receives UPD and it is displayed on the NCCUPD page	Rel. B
9.	NCC	Simulate an acquisition failure and send an Acquisition Failure Notification to EOC	EOC Event Display indicates that the Acquisition Failure Notification was received	
10.	EOC	Verify that the user is connected to the real-time logical string		
11.	EOC	Request ground control privilege for logical string #####: TAKE GROUNDCONTROL STRING=#####	Event Display indicates that the user acquired ground control authority	
12.	EOC	Bring up the RTStringInfo page: PAGE RTStringInfo	RTStringInfo page is displayed	

Step	Station	Action	Expected Results	Comments
13.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	This is the beginning of the valid GCMR section of the test
14.	EOC	Send a User Reacquisition GCMR to NCC: GCMR REACQUISITION LINK=01 SUPPORT=0	Event Display indicates that the GCMR was sent to NCC	
15.	NCC	Send a GCM Disposition and GCM Status indicating ‘request accepted’ to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
16.		Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
17.		Send a Forward Link Sweep GCMR to NCC: GCMR SWEEP LINK=00	Event Display indicates that the GCMR was sent to NCC	
18.		Send a GCM Disposition and GCM Status indicating ‘request accepted’ to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
19.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
20.	EOC	Send a Forward Link EIRP Reconfiguration GCMR to NCC: GCMR EIRPRECONFIG LINK=01 POWER=1	Event Display indicates that the GCMR was sent to NCC	
21.	NCC	Send a GCM Disposition and GCM Status indicating ‘request accepted’ to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
22.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	

Step	Station	Action	Expected Results	Comments
23.	EOC	Send an Expanded User Frequency Uncertainty GCMR to NCC: GCMR EXPAND LINK=03	Event Display indicates that the GCMR was sent to NCC	
24.	NCC	Send a GCM Disposition and GCM Status indicating “request accepted” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
25.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
26.	EOC	Send a User Reconfiguration GCMR to NCC: GCMR RECONFIG SSA RETURN LINK=01 ANTENNA=# IRATE=# QRATE=# FREQ=## MAXEIRP=###	Event Display indicates that the GCMR was sent to NCC	
27.	NCC	Send a GCM Disposition and GCM Status indicating “request accepted” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
28.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
29.	EOC	Send a Doppler Compensation Inhibit GCMR to NCC: GCMR DOPPLERCOMP LINK=01 INHIBIT=0	Event Display indicates that the GCMR was sent to NCC	
30.	NCC	Send a GCM Disposition and GCM Status indicating “request accepted” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	This is the end of the valid GCMR section of the test
31.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	This is the beginning of the invalid GCMR section of the test

Step	Station	Action	Expected Results	Comments
32.	EOC	Send a Forward Link Sweep GCMR to NCC that will cause a “no response received from WSC” status: GCMR SWEEP LINK=##	Event Display indicates that the GCMR was sent to NCC	
33.	NCC	Send a GCM Disposition and GCM Status indicating “no response received from WSC” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
34.	EOC	Select the TDRS: RCCONFIG STRING=#### TDRS=####	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
35.	EOC	Send a User Reacquisition GCMR to NCC that will cause an “invalid parameter in MOC request” status: GCMR REACQUISITION LINK=## SUPPORT=##	Event Display indicates that the GCMR was sent to NCC	
36.	NCC	Send a GCM Disposition and GCM Status indicating “invalid parameter in MOC request” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
37.	EOC	Select the TDRS: RCCONFIG STRING=#### TDRS=####	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
38.	EOC	Send a Forward Link EIRP Reconfiguration GCMR to NCC that will cause a “SUPIDEN conflicts with scheduled SUPIDEN” status: GCMR EIRPRECONFIG LINK=## POWER=##	Event Display indicates that the GCMR was sent to NCC	
39.	NCC	Send a GCM Disposition and GCM Status indicating “SUPIDEN conflicts with scheduled SUPIDEN” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
40.	EOC	Select the TDRS: RCCONFIG STRING=#### TDRS=####	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	

Step	Station	Action	Expected Results	Comments
41.	EOC	Send an Expanded User Frequency Uncertainty GCMR to NCC that will cause a “service is not scheduled” status: GCMR EXPAND LINK=##	Event Display indicates that the GCMR was sent to NCC	
42.	NCC	Send a GCM Disposition and GCM Status indicating “service is not scheduled” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
43.	EOC	Select the TDRS: RCCONFIG STRING=#### TDRS=####	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
44.	EOC	Send a User Reconfiguration GCMR to NCC that will cause a “data rate exceeds allowable rate for this service” status: GCMR RECONFIG SSA FORWARD LINK=## ANTENNA=# IRATE=## QRATE=## FREQ=## MAXERP=###	Event Display indicates that the GCMR was sent to NCC	
45.	NCC	Send a GCM Disposition and GCM Status indicating “data rate exceeds allowable rate for this service” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
46.	EOC	Select the TDRS: RCCONFIG STRING=#### TDRS=####	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
47.	EOC	Send a Doppler Compensation Inhibit GCMR to NCC that will cause a “MOC not authorized for this spacecraft” status: GCMR DOPPLERCOMP LINK=## INHIBIT=##	Event Display indicates that the GCMR was sent to NCC	
48.	NCC	Send a GCM Disposition and GCM Status indicating “MOC not authorized for this spacecraft” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	

Step	Station	Action	Expected Results	Comments
49.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
50.	EOC	Send a User Reconfiguration GCMR to NCC that will cause an “interface channel not available” status: GCMR RECONFIG MA RETURN LINK=## ANTENNA=# RATE=## QRATE=## FREQ=## MAXEIRP=###	Event Display indicates that the GCMR was sent to NCC	
51.	NCC	Send a GCM Disposition and GCM Status indicating “interface channel not available” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
52.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
53.	EOC	Send a Forward Link Sweep GCMR to NCC that will cause a “GCM class inappropriate to service type or configuration” status: GCMR SWEEP LINK=##	Event Display indicates that the GCMR was sent to NCC	
54.	NCC	Send a GCM Disposition and GCM Status indicating “GCM class inappropriate to service type or configuration” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
55.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
56.	EOC	Send a Doppler Compensation Inhibit GCMR to NCC that will cause a “Doppler compensation inhibit code inappropriate for configuration” status: GCMR DOPPLERCOMP LINK=## INHIBIT=##	Event Display indicates that the GCMR was sent to NCC	

Step	Station	Action	Expected Results	Comments
57.	NCC	Send a GCM Disposition and GCM Status indicating “Doppler compensation inhibit code inappropriate for configuration” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
58.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
59.	EOC	Send a User Reacquisition GCMR to NCC that will cause a “WSC is down” status: GCMR REACQUISITION LINK=## SUPPORT=##	Event Display indicates that the GCMR was sent to NCC	
60.	NCC	Send a GCM Disposition and GCM Status indicating “WSC is down” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
61.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
62.	EOC	Send a User Reacquisition GCMR to NCC that will cause a “pending request for same service” status: GCMR REACQUISITION LINK=## SUPPORT=##	Event Display indicates that the GCMR was sent to NCC	
63.	NCC	Send a GCM Disposition and GCM Status indicating “pending request for same service” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
64.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
65.	EOC	Send a Forward Link EIRP Reconfiguration GCMR to NCC that will cause a “syntax error” status: GCMR EIRPRECONFIG LINK=## POWER=##	Event Display indicates that the GCMR was sent to NCC	

Step	Station	Action	Expected Results	Comments
66.	NCC	Send a GCM Disposition and GCM Status indicating “syntax error” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
67.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
68.	EOC	Send an Expanded User Frequency Uncertainty GCMR to NCC that will cause a “SHO ID not found” status: GCMR EXPAND LINK=##	Event Display indicates that the GCMR was sent to NCC	
69.	NCC	Send a GCM Disposition and GCM Status indicating “SHO ID not found” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
70.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
71.	EOC	Send a Forward Link Sweep GCMR to NCC that will cause a “specified service not found” status: GCMR SWEEP LINK=##	Event Display indicates that the GCMR was sent to NCC	
72.	NCC	Send a GCM Disposition and GCM Status indicating “SHO ID not found” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
73.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
74.	EOC	Send a User Reacquisition GCMR to NCC that will cause a “specified service is not active or is undergoing change because of a previous MOC request” status: GCMR REACQUISITION LINK=## SUPPORT=##	Event Display indicates that the GCMR was sent to NCC	

Step	Station	Action	Expected Results	Comments
75.	NCC	Send a GCM Disposition and GCM Status indicating “specified service is not active or is undergoing change because of a previous MOC request” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
76.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
77.	EOC	Send a User Reconfiguration GCMR to NCC that will cause a “parameter out of range” status: GCMR RECONFIG MA FORWARD LINK=## ANTENNA=# IRATE=# QRATE=## FREQ=## MAXEIRP=###	Event Display indicates that the GCMR was sent to NCC	
78.	NCC	Send a GCM Disposition and GCM Status indicating “parameter out of range” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
79.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
80.	EOC	Send a Doppler Compensation Inhibit GCMR to NCC that will cause an “incoming queues full” status: GCMR DOPPLERCOMP LINK=# INHIBIT=#	Event Display indicates that the GCMR was sent to NCC	
81.	NCC	Send a GCM Disposition and GCM Status indicating “incoming queues full” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
82.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	

Step	Station	Action	Expected Results	Comments
83.	EOC	Send a Forward Link Sweep GCMR to NCC that will cause a “user spacecraft not recognized” status: GCMR SWEEP LINK=##	Event Display indicates that the GCMR was sent to NCC	
84.	NCC	Send a GCM Disposition and GCM Status indicating “user spacecraft not recognized” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
85.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
86.	EOC	Send an Expanded User Frequency Uncertainty GCMR to NCC that will cause a “MOC request not applicable for service designated” status: GCMR EXPAND LINK=##	Event Display indicates that the GCMR was sent to NCC	
87.	NCC	Send a GCM Disposition and GCM Status indicating “MOC request not applicable for service designated” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
88.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
89.	EOC	Send a User Reconfiguration GCMR to NCC that will cause a “incomplete or ambiguous parameter designation” status: GCMR RECONFIG MA FORWARD LINK=## ANTENNA=# IRATE=## ORATE=## FREQ=## MAXEIRP=##	Event Display indicates that the GCMR was sent to NCC	
90.	NCC	Send a GCM Disposition and GCM Status indicating “incomplete or ambiguous parameter designation” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	

Step	Station	Action	Expected Results	Comments
91.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
92.	EOC	Send a Forward Link EIRP Reconfiguration GCMR to NCC that will cause a “equipment conflict” status: GCMR EIRPRECONFIG LINK=### POWER=###	Event Display indicates that the GCMR was sent to NCC	
93.	NCC	Send a GCM Disposition and GCM Status indicating “equipment conflict” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
94.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
95.	EOC	Send a User Reconfiguration GCMR to NCC that will cause a “required corresponding forward service is not in operation” status: GCMR RECONFIG MA FORWARD LINK=### ANTENNA=# IRATE=### QRATE=### FREQ=## MAXEIRP=###	Event Display indicates that the GCMR was sent to NCC	
96.	NCC	Send a GCM Disposition and GCM Status indicating “required corresponding forward service is not in operation” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	
97.	EOC	Select the TDRS: RCCONFIG STRING=### TDRS=###	Event Display indicates that the TDRS is selected and the TDRS parameter updates on the RTStringInfo page	
98.	EOC	Send a Doppler Compensation Inhibit GCMR to NCC that will cause a “connectivity table error” status: GCMR DOPPLERCOMP LINK=### INHIBIT=###	Event Display indicates that the GCMR was sent to NCC	

Step	Station	Action	Expected Results	Comments
99.	NCC	Send a GCM Disposition and GCM Status indicating “connectivity table error” to EOC	EOC Event Display indicates that the GCM messages were received and EOC sends an acknowledgment to NCC	This is the end of the invalid GCMR section of the test
100.	NCC	Send a Return Channel Time Delay Measurement Message to EOC	EOC sends an acknowledgment to NCC	
101.	NCC	Send a Time Transfer Message to EOC	EOC sends an acknowledgment to NCC	

Test Termination:

Step	Station	Action	Expected Results	Comments
1.	EOC	Verify all UPD was sent to the Analysis Subsystem		
2.	EOC	Collect all screen snaps and NCC Archive information needed for post-test analysis and verification		
3.	EOC	Shutdown the software: MyKill		
4.	EOC	Shutdown the hardware if necessary	EOC system should be returned to pre-test configuration	
5.	NCC	Log off of the NTS or NCCDS		
6.	I&T	Using screen snaps, dumps, etc., verify that all messages are generated in accordance with the NCC/MOC ICD		
7.	I&T	Using screen snaps, dumps, etc., verify that all messages are transmitted in accordance with the NCC/MOC ICD		
8.	I&T	Using screen snaps, dumps, etc., verify that all messages are ingested in accordance with the NCC/MOC ICD		

Appendix: Test Package Requirements Summary

Release A

Requirement	Description	Test Case(s)
EOC-4060#A	The EOC shall provide the capability to send Ground Configuration Message Requests to NCC.	ICT9.2
EOC-5030#A	The EOC shall provide the capability to receive and process non-telemetry data, which includes, at a minimum, the following: a. Messages from the NCC.	ICT9.2
Release B:		
EOC-2400#B	The EOC shall submit the TDRSS schedule requests to the NCC.	ICT9.1
EOC-2405#B	The EOC shall accept the forecast TDRSS schedule from the NCC.	ICT9.1
EOC-2410#B	The EOC shall accept from the NCC notification of rejection along with the reason for rejection, when all or a portion of the TDRSS schedule request cannot be accommodated.	ICT9.1
EOC-2420#B	In response to the rejection of a TDRSS schedule request, the EOC shall have the capability to modify the request for resubmission to the NCC.	ICT9.1
EOC-4060#B	The EOC shall provide the capability to exchange messages with the NCC, which include at a minimum status and reconfiguration messages.	ICT9.2
EOC-5030#B <i>Partial (a)</i>	The EOC shall provide the capability to receive and process, non-telemetry data, which includes at a minimum the following: a. Messages from the NCC b. Telemetry processing status messages from EDOS	ICT9.2
EOC-7010#B <i>Partial (j)</i>	The EOS Data Base spacecraft and instrument database, referred to as the Project Data Base (PDB) shall include at a minimum the following: a. Housekeeping data formats b. Housekeeping data parameter descriptions c. Command descriptions d. Syntactical rules for commands and operator directives e. Operator directives f. Display formats g. Planning and scheduling definitions and constraints i. Report formats j. NCC configuration codes l. Telemetry parameter limits m. Characteristics of spacecraft and its instruments n. Command validation parameters o. Operations procedures	ICT9.1
EOC-8100#B <i>Partial (NCC CTM)</i>	The EOC shall perform prepass operational readiness tests on the EOC and between the EOC and external interfaces (via test messages).	ICT9.2
EOC-9025#B <i>Partial</i>	The EOC shall provide the capability to notify the operator of events and alarms.	ICT9.1 ICT9.2

Requirement	Description	Test Case(s)
EOSD0025#B <i>Partial</i>	ECS shall use EBnet for flight operations data transfers.	ICT9.1 ICT9.2
EOSD1520#B	ECS elements shall receive TDRSS schedules from the Network Control Center (NCC).	ICT9.1
EOSD1530#B	ECS elements shall submit TDRSS schedule requests to the NCC.	ICT9.1